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STEAM REFORMING PROCESS

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ABSTRACT

PURPOSE: To improve heat efficiency of the process by compressing low pressure steam generated in the system and utilizing the latent heat of condensation of produced steam at high pressure and high temperature for the heat source of the reforming reaction.

CONSTITUTION: A steam compressor 11 is driven interposing a steam turbine 10 which is driven by a part of steam C fed from a gas/liquid separating drum 7. The rest of the steam C is compressed and fed to a reformer 5 in the form of high temperature high pressure steam, where it is utilized as heat source for reforming of fuel B (e.g. methanol). The content of CO in the reformed fuel is reduced in a treating device 6 of the fuel and is supplied to a fuel cell 4, where it is allowed to react with compressed air A from an air compressor 1. Generated steam is led to a gas/liquid separating drum 7, where the steam C is recovered. On one hand, the reformed gas after reacting in the fuel cell 4 is fed to a combustion device 3 where remaining combustible component is burnt, and the pressure is recovered in a waste heat gas expander 2 and utilized as the power for the compressor 1.

